بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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MONA MAGHRABY

Lateral versus Supine Position on Breathing Patterns among Premature Neonates: A Comparative Study

Thesis

*Submitted for Partial Fulfillment of the Requirement of Master Degree in **Pediatric Nursing***

By

Doaa Mahdey Mohamed
B.SC. 2013
Clinical Instructor in Technical Institute of Nursing,
Al-Azhar University

Faculty of Nursing
Ain Shams University
2021

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Acknowledgments

First and foremost, I feel always indebted to ***Allah*** *the Most Beneficent and Merciful.*

I wish to express my deepest thanks and sincere appreciation to ***Dr. Safy Salah Eldin Ibrahim AlRafay****, Professor of Pediatric Nursing, Faculty of Nursing, Ain Shams University for her great support and advice, her valuable remarks that gave me the confidence and encouragement to fulfill this work.*

I express my special gratitude and appreciation to ***Dr. Hyam Rafaat Tantawi****, Professor of Pediatric Nursing, Faculty of Nursing, Ain Shams University for her great support and advice, her valuable supervision, cooperation and direction that extended throughout this work.*

I extend my heartfelt thanks to ***Dr. Fatma Mohammed****, Assistant Professor of Pediatric Nursing, Faculty of Nursing Ain Shams University for her expert guidance, constant encouragement, patience, and personal interest.*

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Lateral versus Supine Position on Breathing Patterns among Premature Neonates: A Comparative Study

Abstract

Background: Positioning of premature neonates is basic neonatal nursing care and one of the important aspects of developmental care to keep the premature neonates comfortable. ***Aim:*** To compare the effect of lateral versus supine position on breathing patterns among premature neonates. ***Design:*** A descriptive comparative study design. ***Setting:*** At Neonatal Intensive care Units (NICU) in Children's Hospital affiliated to Ain Shams University and Saied Galal University Hospital, Al-Azhar University. ***Sample:*** A purposive sample of 162 premature neonates was recruited, they were less than or equal 36 week, and weight between 2000- 2500 grams. ***Tools:*** 1) Pre-designed questionnaire to assess the characteristics of premature neonates, and 2) Observation checklist to assess the breathing patterns and positions of premature neonates. ***Results:*** Findings of the present study showed that more than half of the studied premature neonates suffer from respiratory distress and were small for gestational age. Furthermore, all the studied premature neonates were in the incubator and nearly three quarters of them were spending more than ten days in hospital. Finally, there were a highly statistical significance differences between lateral and supine position for premature neonates heart rate, respiratory rate and oxygen saturation. ***Conclusion:*** Repositioning of premature neonates in NICU from the supine position to lateral position was an effective way to improve their cardiac and respiratory function ***Recommendations:*** Promoting awareness among neonatal nurses about the benefits and importance of repositioning premature neonates in NICU to improve their cardiac and respiratory function.

Keywords: Premature Neonates, Lateral Position, Supine Position, Breathing Patterns.

INTRODUCTION

Premature neonates delivered before 37 weeks of gestational age were exposed to interruption in their intrauterine growth, which exposed them to a very different environment beside their immature organs that required special care not like the normal newborn care environment of swaddling, feeding and holding. Premature neonates are a particularly vulnerable population due to multiple factors such as genetic endowment, physical, social environment, chronic stress and health care that required technologically advanced medical interventions and highly specialized nursing care in order to survive and thrive. The incidence of preterm births over the last 25 years has been relatively constant at approximately 12% of living births in the United States, about 500,000 infants every year, while in Egypt it is about 7.3% ***(Manley et al., 2016).***

Although premature neonates have well-developed pain perception mechanisms, but do not have those required for pain modulation as in term infants or an adult. Pain assessment is the cornerstone of effective management of pain and has been associated with the increased use of analgesia to decrease pain, suffering and improve the quality of life ***(Hagadorn et al., 2017).***

Developmental supportive positioning is an intervention that has been proven to improve postural and musculoskeletal outcomes. As well, as improve sleep states and physiological

outcomes. Positioning of premature neonates is basic neonatal nursing care and one of the important aspects of developmental care to keep the premature neonates comfortable using supine, prone and side lying position as measured by infant positioning assessment tool ***(Spilker et al., 2016).***

However, developmental positioning is not a standardized intervention and various methods of providing developmental positioning have been used, these methods include the use of commercially available products in each NICU such as snuggle-up, as well as the use of simple linen rolls to provide boundaries and supports materials for preterm infant ***(Lykkedegn et al., 2015).***

Currently, Neonatal Intensive Care Units (NICUs) have many technological resources for the care of premature infants, as mechanical ventilators and cardiorespiratory monitors. Due to that, the developmental positioning who need intensive care or invasive maneuvers must adapt to the reality of the NICUs, without the comfort of the womb and exposed the hyperactive stimulation with lights, alarms and actions of the multidisciplinary team. A team oriented to the proper positioning of the premature may contribute to the decrease of physiological and motor stress ***(Roberts et al., 2017).***

Developmental positioning is providing support and posture to the movement; optimizing the development of the skeleton and biomechanical alignment; providing controlled

exposure to varied proprioceptive, tactile, and visual stimuli, and promoting calmness and regulating the behavioral state ***(Asztalos et al., 2017).***

The best way for the premature neonate to adapt is for the nursing staff to help them successfully adapt. Greater levels of consistency of nursing care in the NICU were predictive of short length of hospital stay and shorter duration of mechanical ventilation, oxygen therapy and parenteral nutrition ***(Mayor et al., 2015).***

Significance of the Study:

Today, prematurity is the most important cause of admission in NICUs. Prematurity of lung tissue and respiratory distress syndrome are common problems in premature infants that illustrate the need for special attentions for the respiratory cares. Oxygen administration and mechanical ventilation are done based on infant's needs and applying high oxygen concentration may lead to pulmonary damage and subsequently chronic lung problems. Therefore, considering to the use of appropriate care measures in infants undergoing mechanical ventilation with aim of reducing the need of these infants to oxygen are the important measures in intensive care units ***(Hockenberry et al.,2020 and Bruno et al.,2019)***.

Positioning of premature neonates is a fundamental neonatal nursing care. It comprises supine, prone, side-lying,

and head up tilted position. The premature neonate needs support to assist and sustain postures that increase motor control, physiological functioning and diminish stress. Positioning is also aims to improve various respiratory outcomes which may eventually aid in early weaning so decreasing the overall period of mechanical ventilation ***(Ballout et al.,2017 aand Diwate et al., 2018)***.

Body positioning is an easy, practical, and effective intervention as compared with other invasive measures. Each position has its own advantages and disadvantages that should be identified by the nurses. It seems that these positions can be applied to the premature neonates to improve their comfort and health. Both of them are easy and cost-effective for health care workers ***(Elsagh et al.,2019)***.

Since there are rare studies about comparing the effect of lateral and supine positions on tissue oxygenation rate in infants and the results are controversial. As the premature neonates with assisted ventilation benefit from positioning as it increases oxygen saturation ***(Poets et al., 2019)***.